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Diabetes, ankle joint mobility, aging, and foot ulcer

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In diabetic patients the evaluation of how ankle joint mobility (AJM) can be useful in the identification of connective tissue alteration and risk of foot ulcer (FU).

Plantar and dorsal flexion of foot were evaluated using an inclinometer in 87 patients (54 type 2 and 33 type 1), and 35 healthy sex- and age-matched control subjects. Patients with diabetes were followed up for diagnosis of FU over the next 8 years and subsequently, patients were subdivided into: those without a history of FU (18 type 1 and 33 type 2), those who had a history of FU detected before baseline evaluation (14 type 2) and those who had history of first ulceration detected by the 8th year of the evaluation period (7 type 2).

Aging and diabetes caused a significant reduction in mobility of each of the movements investigated ($p < 0.001$), whereas after adjusting for the confounding effect of age, diabetes specifically reduced plantar flexion ($p < 0.0001$). AJM was significantly lower in those with history of previous FU compared to all the other groups ($p < 0.001$). The first ulceration was detected in the same foot presenting lower AJM in 17 of the 22 subjects with diabetes with history of ulcer (77.27%).

Diabetes and aging reduce AJM although diabetes seems to reduce plantar flexion to a more specific extent. Reduced AJM is mostly associated with a previous history of FU. The evaluation of AJM is a valid and reliable ulcer risk scale that indicates which foot is at higher ulcer risk.

Keywords

Diabetic foot. Ankle range of motion; Limited joint mobility; Foot ulcer risk scale.

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